

Draft Site Physical Characterization Summary Report CDPHE Review Comments

General Comments

Overall, a good general description of the site, some portions are out of date, but easily corrected once the land and pond configuration decisions are made.

Specific Comments

Section 1.0, page 1: 3rd paragraph - Why not also include a recognition of the area being retained by DOE? Not all of RFETS will be transferred to FWS, specifically the IA and area to the east is to be retained by DOE.

Section 3, page 4: Need to also include the remaining fence posts, utility poles, and other similar infrastructure that remain within 3 ft of the surface, as well as the deeper remaining infrastructure such as the various slabs (some contaminated), tunnels, sewer lines, water lines, foundation drains, storm drains, manholes/manways, Valve Vaults, Process Waste Lines, etc, below 3 feet.

Section 4.1, page 6: The last sentence is unclear and needs revision.

Section 4.2.1, page 7: Although this section may be discussing the "results from historic investigations", the current configuration of the IA should be recognized. This includes the excavations that have occurred to put in the buildings and utilities, which have increased the thickness of the unconsolidated surficial deposits, including the alluvium in the eastern thinner part of the IA. As such, the thinner areas of the alluvium, which is described as less than 10 feet, has been increased to as much as 20 feet or more of alluvium, and the alluvium has been modified to include a lot of gravel. This also removes a lot of the weathered bedrock and replaces it with alluvium. Therefore, the groundwater would now preferentially flow through the alluvium, rather than the weathered bedrock as stated. The last sentence is not part of the description of the RFA lithology.

Section 4.2.2, page 7: Revise second sentence: "...and has a hydraulic conductivity intermediate to the hydraulic conductivities of those two formations." Colluvium is a mass wasting deposit that includes landslides and slumps, Section 4.2.3 should actually be a subsection of this section.

Section 4.2.5, page 8: The caliche, as discussed, has been almost entirely destroyed and rarely remains in the IA area due to the intense reworking of the alluvium and shallow bedrock. This should also be discussed.

Section 4.3.2, page 10: Describe the Laramie sandstones in more detail - how are they different from the Arapahoe? Are they connected enough to provide a pathway for

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ground water? Add a section describing the Laramie-Fox Hills Formation and disconnection to surficial flow system.

Section 4.4, page 11: Add the standard cross section figure to this discussion. Replace second paragraph with an explanation of the upturned beds on the western side of the site and describe the hydrogeologic impact.

Section 4.5, page 11: The tectonics paragraph from the previous section fits better here. Replace "Verdos Alluvium" with "other recent deposits" and start new sentence with "Evaluation". Qualify seismic risk discussion with further evaluation that the Colorado Geologic Survey is requesting of the USGS. Please provide additional information about other faults referenced in last sentence, are they the same as those discussed elsewhere in this document?

Section 4.6, page 12: Add specific discussion of the effect of these geomorphic processes on the site ponds and the OLF cover. Page 13 – Table 2 lists the names of the 6 soil types, please include these names in these group descriptions.

Section 5.0, page 14: Last paragraph typo- 0 should be 5.4. The period of record used for all the surface water discussions should include earlier data, starting with October 1996 eliminates one of the most significant surface water events onsite. If the data is not available it should be acknowledged that flood flows have exceeded the measurement ability of the flow gages.

Section 5.2.6, page 21: The Water Supply Classification is still in place Great Western Reservoir, future use as a drinking water supply is not precluded.

Section 6.0 page 27: Differentiate the Laramie-Fox Hills Aquifer from the LHSU, describe the LFH in the Regional Setting section for completeness.

Section 6.2, page 29: In documents written for the public in the US it is helpful to include a translation to units commonly used such as feet/day for hydraulic conductivity.

Section 6.3.1, page 30: Although the general discussion may be historically correct, there should be added discussion recognizing the changes that have occurred in the bedrock surface and resulting modifications to groundwater flow, as described in the 2003 studies, as presented. These changes include the potential increase in groundwater levels that are expected to occur (up to 3 ft increase) now that most of the ground cover has been removed (some slabs remain below 3 feet), the increase in alluvium due to previous infrastructure excavations, and the related lowering of the bedrock levels in the eastern IA, as well as channeling into the bedrock for utilities, storm drains, and sanitary sewer lines. These changes to the UHSU throughout the IA will modify the potentiometric surface and groundwater flow as well as potential changes to seep discharges. It might also be advantageous to include a figure describing the groundwater modeling to identify potential future groundwater levels and movement based on the changes that have occurred.

Table 1, page 69: Please include plugged drain lines, process waste lines, and sewers in table revision. Needs to be expanded as indicated, to include other remaining infrastructures, as well as changes to the list provided. B991, 881, and 771 include Tunnels (some filled, some empty). B707 slab has been completely removed, and B444 is supposed to be also. This table should also be modified to identify if the remaining infrastructure is contaminated or not.

Table 4, page 72: Should also include the activities that have occurred, such as the removal of contaminated sediment from the B ponds. Also include modifications due to dam notching.

Table 5, page 75: Does the dash in the discharge volume columns mean no estimate or zero?

Table 10, page 81: Segment 10, believed to be occupied by a gas pipeline. This gas pipeline has been in the way of every project on the south facing slope of Woman Creek, either the site knows of it's existence and location or it doesn't. This is a very bad place to lack information on a gas pipeline. Please resolve this lack of information.

Figure 4, page 89: Please include the additional information requested for Table 1 in this revised figure, identify the contaminated structures remaining, as well as areas.

Figure 6: As has been pointed out numerous times, this map does not provide an accurate determination of actual landslide and high erosion areas associated with the IA or to the NW or the IA (in the Walnut Creek drainage). It should, therefore, be properly modified to provide the appropriate data, rather than continue to provide inaccurate information. Two of the subsurface treatment systems are in landslide-prone areas. This fact needs to be considered in the RI/FS to evaluate the treatment system stability.

Figure 17: Some labels are overprinted and it is difficult to connect other labels with the correct tract boundary, please improve this figure.

Figure 18: Why doesn't this figure (as well as the following figures) include the proposed vegetation to be established in and around the IA and in the drainages?

Additional figures are needed: Why isn't the proposed land reconfiguration presented? None of the figures provide the proposed reconfiguration of the drainages within the IA. Why not include a figure identifying all known remaining subsurface contamination areas (with contamination above WRW levels). Why isn't a figure provided that identifies the area to be retained by DOE?